

Medicine's Experimental Advances Reported

The eight leading societies devoted to experimental medicine and biology met at Rochester, N. Y., April 14, 15 and 16. Nearly a thousand scientists attended the meetings of the Federation of American Societies for Experimental Biology, comprising the Physiological Society, the Society of Biological Chemists, the Society of Pharmacology and Experimental Therapeutics and the Society for Experimental Pathology, and also the American Association of Pathologists and Bacteriologists, the American Association of Immunologists, the American Association for Cancer Research and the International Association for Medical Museums. The high lights of these meetings, as reported by Watson Davis, are given below.

Heredity Controls Cancer

No germ is guilty of causing cancer. Instead, in the inheritance that parent hands on to child, lies susceptibility or freedom from this dreaded disease.

Such is the conclusion of Dr. Maud Slye, based on the evidence of 80,000 mice. Her theory that conditions favorable to cancer are inheritable disputes the claims of the English scientists, Gye and Barnard, who recently reported the discovery of a cancer-causing organism.

For the past eighteen years in her laboratories at the University of Chicago, Dr. Slye has been breeding mice to throw light on the nature of cancer. She has colonies of mice practically every member of which develops cancer. Other colonies, living in the same room, are so resistant that cancer never occurs.

Just as shape of nose, color of hair and eyes and other characteristics of fathers and mothers are reproduced in their children, so the mice pass on to their progeny their susceptibility or resistance to malignant growths. By proper matings, Dr. Slye can breed out the cancer producing strains in two generations—or she can condemn the mouse family to have cancerous progeny without failure generation after generation.

Equally as important as the inherited susceptibility is a wound or injury that allows the cancer to get a start, Dr. Slye has found. Mice of a cancer family seem to lack a controlling factor in their issues that allows injured cells to run wild and form the malignant tumor mass.

Mice react physically to drugs and disease so much like men that Dr. Slye believes that it is likely that the cancer of human beings also is inherited. Human beings are so complex in their inherited qualities that the laws governing the inheritance of cancer are probably very complex.

Yet it is conceivable that thousands of people need not fear the development of cancer on account of their resistance to the disease. If three generations of accurate statistics on cancer patients were kept by all physicians, Dr. Slye explained, the problem of cancer inheritance in the human race could be solved.

Cancer in Twins

A remarkable case of cancer in identical twins, tending to support Dr. Slye's theories, was reported by Dr. Alfred S. Warthin of Ann Arbor, Michigan. Twin sisters, mirror images of each other, alike in character and tastes, grew up together, had mumps and measles at the same time. They both married at the age of eighteen, a year later each had a child of the same sex and when their children were a year old, both obtained divorces. The next simultaneous performance was appendicitis. The operations revealed that one twin's appendix was on the right side, as it should be, but the other had her appendix on the left side. This is in accord with the theory that identical twins were at an early stage before birth actually the same organism. Then both twins developed cancers in the same organ of the body. Operations were performed but the cancers recurred and the twins died together, as they had lived. Dr. Warthin cited cases of three other sets of twins who had suffered from identical cancers.

Drunkenness Test

A chemical test for drunkenness has been developed by Dr. Emil Bogen, of the University of Cincinnati, in cooperation with the police department of Cincinnati.

It promises to make it hard for the inebriate to tell the judge he "didn't have a drop," for Dr. Bogen's chemicals detect the alcohol in a man's breath and tell just how intoxicated he is. Physicians attending stated that the new test would prove useful in distinguishing between persons injured and exhibiting symptoms similar to intoxication and those actually under the influence of alcohol.

The apparatus used for the test is exceedingly simple and could be used effectively by any trained nurse or physician. The alcoholic suspect is persuaded to blow up an ordinary

football. The sample of his breath thus obtained is passed through a solution of a chemical, called potassium dichromate, which changes color from yellow to green depending upon how much alcohol the breath contains.

Dr. Bogen has devised a scale of alcoholic intoxication based on the amount of alcohol found in the body through the use of his test. When the quantity is less than one-tenth of one per cent., the person is "dry and decent"; one to two-tenths per cent., "delighted and devilish"; two to three-tenths per cent., "delinquent and disgusting"; three to four-tenths per cent., "dizzy and delirious"; four to five-tenths per cent., "dazed and dejected"; more than half of one per cent., "dead drunk". More than a half per cent. is likely to cause death.

In standardizing the new alcohol test a group of scientific martyrs composed of physicians and internes imbibed measured amounts of alcohol and allowed tests to be performed upon them. It was discovered that the test does not reveal the amount of alcohol imbibed, but that it does accurately tell the amount absorbed by the body. One subject became only mildly intoxicated after drinking a half pint of pure alcohol.

Over 500 drunks picked up by the Cincinnati police have been tested by Dr. Bogen, and his test data have been used in fifty traffic court trials where the severity of the sentence depended upon whether or not the offender was intoxicated while driving.

Some of those tested got their tongues twisted when the test showed less than one-tenth per cent. alcohol, but none could talk absolutely soberly when the tests ran as high as four-tenths per cent.

Motion pictures exhibited by Prof. W. R. Miles, of Stanford University, showed that white albino rats under the influence of alcohol can no more walk the straight and narrow path than human beings under the same conditions. Educated rats that had learned to find their way quickly to food through a maze of blind alleys and elevated runways, became confused, wasted time and fell off when allowed to imbibe.

Myrtilin for Diabetes

Four years ago the discovery of insulin revolutionized the treatment of

(Just turn the page)

Medical Advances

(Continued from page 259)

diabetes. Now Dr. Frederick M. Allen, director of the Physiatrie Institute, Morristown, N. J., has announced the discovery of myrtillin, a new substance that might be termed vegetable insulin.

Dr. Allen revealed that myrtillin produces some of the beneficial effects of insulin without some of the greatest disadvantages of insulin. Scientists who heard his paper predicted that myrtillin will make it possible for diabetic patients to safely undergo surgical operations necessitated by another disorder. With present technique such patients have little chance of recovery.

This new preparation was discovered by Dr. Richard R. Wagner, chief of the chemical department of the Physiatrie Institute, who has also worked out the methods of producing it.

The leaves of the blueberry or huckleberry are the source of myrtillin, but it can be obtained from the green leaves of certain varieties of plants, especially the myrtle family, from which the name of the substance is taken.

"Myrtillin may be a vitamin," Dr. Allen declared in stating that it is at present a substance of unknown nature, which is believed to be an active constituent in animal as well as vegetable tissues, but is difficult to separate from protein, gums and other colloids.

A source of danger in the use of insulin in treating diabetes is that the patient will have the excess sugar in his blood, the condition characteristic of diabetes, removed too effectively, causing coma and perhaps death. Myrtillin has been found to effectively reduce the condition of excess sugar without removing the normal amount that healthy blood must have, which is about one in 10,000. Moreover, myrtillin has no toxic effects even in large dosage.

When it is necessary to perform a surgical operation on a diabetic patient, the sugar in the blood must be reduced. The present procedure is to reduce the blood sugar by carefully regulated injections of insulin and rigid control of the diet. This requires time and there is always danger of reducing the blood sugar too much. By use of myrtillin, an overdose of which is not harmful, the blood sugar of a patient needing a prompt operation can be reduced to normalcy quickly.

Another advantage of myrtillin, Dr. Allen explained, is that it can be given by mouth whereas insulin must be injected by hypodermic needle. In spite of the fact that its effects are similar to insulin Dr. Allen declared that myrtillin is altogether different from insulin in composition.

Myrtillin has been used in the treatment of patients in Dr. Allen's clinic and its use is thus considered beyond the experimental stage. Detailed results of the clinical application are to be given by Dr. Allen at the meeting of the American Medical Association in Washington in May.

First Crystallized Enzyme

The world's first crystallization of an enzyme, a substance that eggs on chemical changes in the body without actually participating in them, was described by Dr. James B. Sumner, of Cornell. Urease is the substance obtained in pure form and scientists explain that this accomplishment will lead to a better understanding of digestive processes now shrouded in mystery.

Treatment of Dropsy

Success in the treatment of dropsy is reported by Dr. Norman M. Keith, of the Mayo Clinic, Rochester, Minn., who has been able to reduce by means of ammonium nitrate the watery deposits in the tissues which constitute the diseased condition known as edema. Dr. Keith had previously found that ammonium chloride would mobilize the fluid in the waterlogged body, thereby permitting its elimination. Now he has discovered that the similar and equally common salt, ammonium nitrate, is still more efficacious presumably on account of the accessory effect of the nitric acid which is liberated from it in the body. The ammonium nitrate is administered by mouth in capsules and certain mercury containing drugs given at the same time are an aid in the treatment.

Z Blood Factor

A new substance in the blood, provisionally named the Z factor, was introduced to the scientific world recently by Prof. Elbert W. Rockwood, of the University of Iowa, its discoverer. It is similar but not the same as uric acid. In diseases of the blood, like anemia, leukemia and syphilis, the amount of substance Z is increased to three or four times that of the normal blood.

New Drug Plant

From America's own soil there will soon be produced a useful drug heretofore obtained only from a Chinese herb. Dr. Guy W. Clark of the University of California reported to the pharmacologists this morning that he has succeeded in obtaining ephedrine, valuable in increasing blood pressure and treating colds in the head, from two common California plants. This drug is expected to replace adrenalin in some uses and the discovery of an American source assures the supply despite disturbed Chinese conditions.

Science News-Letter, April 23, 1927

Do You Know That—

Victor fish are the most abundant of all fish in the open waters of the Pacific.

Recent investigation indicates that the night heron does not deserve its bad reputation of being destructive to trout.

The perfuming principle found in natural musk, which is an important factor in perfume making, can at last be made in the laboratory.

BINDER COVERS

FOR

SCIENCE NEWS-LETTER

Many subscribers have expressed a desire for a convenient binder in which to file their copies of the Science News-Letter. We therefore have prepared an attractive and durable loose-leaf binder-cover of gray leather-like stock, printed in dark green and complete with fasteners. Each binder-cover will hold one volume (six months or 26 issues).

To facilitate punching the issues of the Science News-Letter to fit this binder-cover, a pattern showing where holes should be placed appears each week on the back cover page.

To obtain a binder-cover, send 20 cents in stamps (make them 2s, please), together with your name and address (please print) to

SCIENCE SERVICE
21st and B Sts.
Washington, D. C.